Attachment to ICCL Standard E-1-01 (Revision 1)

CRUISE INDUSTRY
WASTE MANAGEMENT
PRACTICES AND PROCEDURES

(REVISED: December 1, 2001)

The cruise industry is dedicated to preserving the marine environment and oceans upon which our ships sail. As a stated industry standard, ICCL members have adopted aggressive programs of waste minimization, waste reuse and recycling, and waste stream management set forth in the following. In addition ICCL members are working in a number of areas to identify and implement new technologies in order to improve the environmental performance of their ships. ICCL member lines currently have agreed to utilize waste management practices and procedures, which meet or exceed the stringent standards as set forth in international treaties and applicable U.S. laws.

Introduction

The cruise industry is inextricably linked to the environment. Our business is to bring people to interesting places in the world, over the water. Recognizing the future of the industry depends on a clean and healthy environment, cruise industry senior management is committed to stewardship of the environment and establishing industry practices that will make ICCL member cruise ship operators leaders in environmental performance.

This document outlining member line practices has been developed under the auspice of the industry's professional organizations, the International Council of Cruise Lines (ICCL), the Florida Caribbean Cruise Association (FCCA), and the Northwest Cruise Ship Association (NWCA). The purpose of this document is to set forth cruise industry waste management practices and procedures that ICCL member cruise vessel operators have agreed to incorporate into their respective Safety Management Systems.

In the development of industry practices and procedures for waste management, the members of the International Council of Cruise Lines have endorsed policies and practices based upon the following fundamental principles:

- Full compliance with applicable laws and regulations
- Maintaining cooperative relationships with the regulatory community
- Designing, constructing and operating vessels, so as to minimize their impact on the environment
- Embracing new technology
- Conserving resources through purchasing strategies and product management
- Minimizing waste generated and maximize reuse and recycling
- Optimizing energy efficiency through conservation and management
- Managing water discharges
- Educating staff, guests and the community.

Discussion

Just as on shore, ship operations and passengers generate waste as part of many daily activities. On ships, waste is generated while underway and in port. Because ships move, the management of these wastes becomes more complicated than for land-based activities, as the facilities and laws change with the location of the ship. Facilities on the ships and management practices must be designed to take into account environmental laws and regulations around the world. Moreover, because waste management ultimately becomes a local activity, the local port infrastructure, service providers, and local waste disposal vendors are factors in the decision-making processes.

On an international level, environmental processes are an important part of the International Maritime Organization's (IMO's) policies and procedures for the maritime industry. ICCL member lines have agreed to incorporate environmental performance into Safety Management Systems (SMS) and MARPOL mandated Waste Management Manuals. Under agreements and laws specific to many nations, these programs are routinely reviewed by Port States to ensure compliance. For example, in the United States, the US Coast Guard has jurisdiction over environmental matters in ports and waterways and conducts passenger ship examinations that include review of environmental systems, SMS documentation and such MARPOL-mandated documents as the Oil Record Book and the Garbage Record Book.

The industry effort to develop waste management practices and procedures has focused on the traditional high volume wastes (garbage, graywater, blackwater, oily residues (sludge oil) and bilge water), pollution prevention, and the small quantities of hazardous waste produced onboard. In the process, ICCL members have shared waste management strategies and technologies, while focusing on a common goal of waste reduction.

The process of waste reduction includes waste prevention, the purchasing of products that have recycled content or produce less waste (e.g. source reduction), and recycling or reuse of wastes that are generated. The ultimate goal is to have the waste management culture absorbed into every facet of cruise vessel operation. A fully integrated system beginning with the design of the vessel should address environmental issues at every step.

Management practices for waste reduction should start before a product is selected. Eco-purchasing and packaging are vital to the success of any environmental program, as are strategies to change packaging, processes and management to optimize the resources used.

The commitment of the industry to this cooperative effort has been quite successful, as companies have shared information and strategies.

Industry Standard Waste Handling Procedures

ICCL member lines have agreed that hazardous wastes and waste streams onboard cruise vessels will be identified and segregated for individual handling and management in accordance with appropriate laws and regulations. They have further agreed, hazardous wastes will not be discharged overboard, nor be commingled or mixed with other waste streams.

A. **<u>Photo Processing, Including X-Ray Development Fluid Waste</u>:** *ICCL member lines have agreed to minimize the discharge of silver into the marine environment through the use of best available technology that will reduce the silver content of the waste stream below levels specified by prevailing regulations or by treating all photo processing and x-ray development fluid waste (treated or untreated) as a hazardous waste and landing ashore in accordance with RCRA requirements.*

There are several waste streams associated with photo processing operations that have the potential to be regulated under the Resource Conservation and Recovery Act (RCRA). These waste streams include spent fixer, spent cartridges, expired film and silver flake.

Photographic fixer removes the unexposed silver compounds from the film during the developing process. The spent fixer can have as much as 2000-3000 parts per million (ppm) of silver. Silver bearing waste is regulated by RCRA as a hazardous waste if the level of silver exceeds 5 ppm as determined by the Toxicity Characteristic Leaching Procedure (TCLP) test.

Silver recovery units may be used to reclaim the silver from the used fixer waste stream. There are two types of recovery units. These are active (with electricity) and passive (without electricity) units. The active unit uses electricity to plate silver onto an electrode. The passive unit uses a chemical reaction between steel wool and silver to remove most of the silver from solution. Utilizing the best available technology, the equipment currently onboard ICCL member cruise ships is conservatively estimated to reduce the silver content of this effluent below 4 mg/l (milligrams/l or ppm)

The effluent from the silver recovery process must be tested before it can be discharged as a non-hazardous waste to be further diluted by addition to the ship's gray water. After the photographic and X-ray development fluids are treated for the removal of silver, the treated, non-hazardous effluent is then blended with the ship's graywater. In general, assuming that an entire week's photographic and X-ray development treated effluent stream is introduced into a single day's accumulation of graywater, the concentration of silver in the resulting mixture would be less than one-half of one part per billion (<0.5 micrograms/liter). Such mixing is not done on a weekly basis. Even at this assumed extreme however, it is expected that the silver concentration would only be approximately one fifth (1/5) the surface water quality standard for predominately marine waters specified in one state where cruise ships operate. When mixing is done on a daily basis it is evident that the resulting immediate concentration would be almost an order of magnitude less than this (1/50 of the current surface water quality standard). Additionally, it is evident that total mass of any discharges of silver would be negligible. Member lines have agreed that this discharge would be carried out only while their vessels are underway. Also, it should be noted that these estimates were carried out considering the largest cruise ships in service, which would produce the greatest amount of waste.

<u>Handling Method 1 Employed by Member Lines</u>:

Treat used photographic and x-ray development fluids to remove silver for recycling.

Verify that the effluent from the recovery unit is less than 5 parts per million (ppm) silver, as measured by EPA-approved methodology.

After treatment, the residual waste stream fluid is non-hazardous and landed ashore or discharged in accordance with the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and other prevailing regulations.

Handling Method 2 Employed by Member Lines:

Used photographic and x-ray development fluids, either treated or untreated, may be assumed to be a hazardous waste. In this event, they are landed ashore in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA).

B. **Dry-cleaning waste fluids and contaminated materials**: *ICCL member lines have agreed to prevent the discharge of chlorinated dry-cleaning fluids, sludge, contaminated filter materials and other dry-cleaning waste byproducts into the environment.*

Shipboard dry cleaning facilities use a chlorinated solvent called perchlorethylene (also known as PERC or tetrachloroethylene) as a dry cleaning fluid. This is the approved dry cleaning solvent for these units. Operators must receive specific required training for the correct use of this chemical and its associated precautions. This solvent should be used in accordance with all safety procedures including appropriate personal protective equipment (PPE).

The dry cleaning units produce a small volume waste from condensate, the bottoms of the internal recovery stills, waste products from button and lint traps, spent perchloroethylene and filter media. This waste is comprised of dirt, oils, filter material, and spent solvent. Each ship utilizing these dry-cleaning units produces approximately two pounds of waste material weekly. However, the amounts may vary greatly by season and passenger load. This material is classified as hazardous waste under RCRA and must be handled accordingly.

Handling Method 1 Employed by Member Lines:

Perchloroethylene (PERC) and other chlorinated dry-cleaning fluids, contaminated sludge and filter materials are hazardous waste and landed ashore in accordance with the requirements of RCRA.

C. **Print Shop Waste Fluids:** *ICCL member lines have agreed to prevent the discharge of hazardous wastes from printing materials (inks) and cleaning chemicals into the environment.*

Print shop waste may contain hazardous waste. Printing solvents, inks and cleaners all may contain hydrocarbons, chlorinated hydrocarbons, and heavy metals that can be harmful to human and aquatic species. Recent advances in printing technology and substitution of chemicals that are less hazardous reduces the volume of print shop waste generated and reduces the impact of these waste products.

ICCL member lines have agreed to utilize, whenever possible, printing methods and printing process chemicals that produce both less volume of waste and less hazardous waste products, that shipboard printers will be trained in ways to minimize printing waste generated, and that alternative printing inks such as soy based, non-chlorinated hydrocarbon based ink

products will be used whenever possible. The member lines have further agreed that all print shop waste including waste solvents, cleaners, and cleaning cloths will be treated as hazardous waste, if such waste contains chemical components that may be considered as hazardous by regulatory definitions, and that all other waste may be treated as non-hazardous.

Handling Method 1 Employed by Member Lines:

When using traditional or non-soy based inks and chlorinated solvents, all print shop waste is treated as hazardous, and discharged ashore in accordance with RCRA.

Handling Method 2 Employed by Member Lines:

Shipboard printing processes use non-toxic based printing ink such as soy based, non-chlorinated solvents, and other non-hazardous products to eliminate hazardous waste products.

D. Photo Copying and Laser Printer Cartridges: *ICCL member lines have agreed to initiate procedures so as to maximize the return of photocopying and laser printer cartridges for recycling, and in any event, have agreed that these cartridges will be landed ashore.*

Increased use of laser and photo copying equipment on shore as well as onboard ship results in the generation of increased volumes of waste cartridges, inks, and toner materials. ICCL member lines have agreed to use only such inks, toners and printing/copying cartridges that contain non-hazardous chemical components, and that none of these cartridges or their components should be disposed of by discharge into the marine environment. In recognition of the member lines' goal of waste minimization, they have further agreed these cartridges should, whenever possible, be returned to the manufacturer for credit, recycling, or for refilling.

Handling Method Employed by Member Lines:

ICCL member lines have agreed that wherever possible, photo copying and laser printer cartridges will be collected, packaged and returned for recycling and when this is not possible, that these materials will not be discharged into the sea or other bodies of water but will be handled as other shipboard waste that is landed ashore for further disposal.

E. Unused And Outdated Pharmaceuticals: *ICCL member lines have agreed to ensure that unused and/or outdated pharmaceuticals are effectively and safely disposed in accordance with legal and environmental requirements.*

In general ships carry varying amounts of pharmaceuticals. The pharmaceuticals carried range from over-the-counter products such as anti-fungal creams to prescription drugs such as epinephrine. Each ship stocks an inventory based on its itinerary and the demographics of its passenger base. ICCL member lines have agreed that all pharmaceuticals will be managed to ensure that their efficacy is optimized and that disposal is done in an environmentally responsible manner.

ICCL member lines have further agreed that when disposing of pharmaceuticals, the method used will be consistent with established procedures, and that pharmaceuticals and medications which are off specification or which have exceeded their shelf-life, and stocks that are unused and out of date, cannot be used for patients and therefore will be removed from the ship. Further, each regulatory jurisdiction has a posting of listed pharmaceuticals that must be

considered hazardous waste once the date has expired or the item is no longer considered good for patient use.

Through onboard management of the medical facility, ICCL member lines have agreed that stocks of such listed pharmaceuticals are returned to the vendor prior to date of expiration. Pharmaceuticals that are being returned and which have not reached their expiration date are shipped using ordinary practices for new products.

Safety and Health

ICCL member lines have agreed that all expired listed pharmaceuticals will be handled in accordance with established procedures and all personnel handling this waste will receive appropriate training in the handling of hazardous materials. As guidance, the US Environmental Protection Agency (EPA) has issued a report that clarifies the fact that residuals, such as epinephrine, found in syringes after injections are not considered an acutely hazardous waste by definition and may be disposed of appropriately in sharps containers. Member lines have agreed that all Universal Precautions will be adhered to when handling sharps.

Handling Method 1 Employed by Member Lines:

Establish a reverse distribution system for returning unexpired, unopened non-narcotic pharmaceuticals to the original vendor.

Handling Method 2 Employed by Member Lines:

Appropriately destroy narcotic pharmaceuticals onboard ship in a manner that is witnessed and recorded.

Handling Method 3 Employed by Member Lines:

Land listed pharmaceuticals in accordance with local regulations. Listed pharmaceuticals are a hazardous waste having chemical compositions which prevent them from being incinerated or disposed of through the ship's sewer system. Listing of such pharmaceuticals may vary from state to state.

Handing Method 4 Employed by Member Lines:

Dispose of other non-narcotic and non-listed pharmaceuticals through onboard incineration or landing ashore.

F. **Fluorescent And Mercury Vapor Lamp Bulbs**: *ICCL member lines have agreed to prevent the release of mercury into the environment from spent fluorescent and mercury vapor lamps by assuring proper recycling or by using other acceptable disposal.*

The recycling of fluorescent lights and high intensity discharge (HID) lamps is a proven technology capable of reliably recovering greater that 99 percent of the mercury in the spent lights. This is done by using a crush-and-sieve method. In this process, the spent tubes are first crushed and then sieved to separate the large particles from the mercury containing phosphor powder. The phosphor powder is collected and processed under intense heat and pressure. The mercury is volatized and then recovered by condensation. The glass particles are segregated and

recycled into other products such as fiberglass. Aluminum components are also recycled separately.

Storage and handling of used lights pose no compatibility problems; nevertheless, storage and shipment of the glass tubes is best done keeping the glass tubes intact. These items are classified as "Universal Waste" when they are shipped to a properly permitted recycling facility; as such, testing is not required.

Safety and Health

Fluorescent and Mercury Vapor lamps contain small amounts of mercury that could potentially be harmful to human health and the environment. To prevent human exposure and contamination of the environment, ICCL member lines have agreed that these lamps will be handled in an environmentally safe manner. Recycling of mercury from lamps and other mercury containing devices is the preferred handling method and is encouraged by various states. The recycling of fluorescent lights and HID lamps keeps potentially hazardous materials out of landfills, saves landfill space and reduces raw materials production needs.

Handling Method Employed by Member Lines:

Fluorescent and mercury vapor lamps are collected and recycled or landed for recycling or disposal in accordance with prevailing laws and regulations.

G. **Batteries**: *ICCL member lines have agreed to prevent the discharge of spent batteries into the marine environment.*

If not properly disposed of, spent batteries may constitute a hazardous waste stream. Most of the large batteries are on tenders and standby generators. Small batteries used in flashlights and other equipment and by passengers, account for the rest. There are four basic types of batteries used.

Lead-acid batteries – These are used in tenders and standby generators. They are wet, rechargeable, and usually six-celled. They contain a sponge lead anode, lead dioxide cathode, and sulfuric acid electrolyte. The electrolyte is corrosive. These batteries require disposal as a hazardous waste, unless recycled or reclaimed.

Lead-acid batteries use sulfuric acid as an electrolyte. Battery acid is extremely corrosive, reactive and dangerous. Damaged batteries will be drained into an acid-proof container. A damaged and leaking battery is then placed in another acid-proof container, and both the electrolyte and the damaged battery placed in secure storage for proper disposal as a hazardous waste.

Nickel-cadmium (NiCad) batteries – These are usually rechargeable, and contain wet or dry potassium hydroxide as electrolyte. The potassium hydroxide is corrosive and the cadmium is a characteristic hazardous waste. Therefore, NiCad batteries will be disposed of as hazardous waste, unless recycled or reclaimed.

Lithium batteries – These are used as a power source for flashlights and portable electronic equipment. All lithium batteries will be disposed of as hazardous waste, or sent out for reclamation.

Alkaline batteries – These are common flashlight batteries and are also used in many camera flash attachments, cassette recorders, etc. They should be recycled, properly disposed or reclaimed.

Handling Method Employed by Member Lines:

Spent batteries are collected and returned for recycling and/or disposal in accordance with prevailing regulations. Discarded batteries are isolated from the refuse waste stream to prevent potentially toxic materials from inappropriate disposal. The wet-cell battery-recycling program is kept separate from the dry battery collection process. Intact wet-cell batteries are sent back to the supplier. Dry-cell batteries are manifested to a licensed firm for recycling.

H. Bilge and Oily Water Residues: *ICCL member lines have agreed to meet and exceed the international requirements for removing oil from bilge and wastewater prior to discharge.*

The area of the ship at the very bottom of the hull is known as the bilge. The bilge is the area where water collects from various operational sources such as water lubricated shaft seals, propulsion system cooling, evaporators, and other machinery. All engine and machinery spaces also collect oil that leaks from machinery fittings and engine maintenance activities. In order to maintain ship stability and eliminate potential hazardous conditions from oil vapors in engine and machinery spaces, the bilge spaces should be periodically pumped dry. In discharging bilge and oily water residues, both international regulations (MARPOL) and United States regulations require that the oil content of the discharged effluent be less than 15 parts per million and that it not leave a visible sheen on the surface of the water.

All ships are required to have equipment installed onboard that limits the discharge of oil into the oceans to 15 parts per million when a ship is en route and provided the ship is not in a special area where all discharge of oil is prohibited. Regulations also require that all oil or oil residues, which cannot be discharged in compliance with these regulations, be retained onboard or discharged to a reception facility. The equipment and processes implemented onboard cruise ships to comply with these requirements are complex and sophisticated.

The term *"en route"* as utilized in MARPOL (73/78) Regulation 9(b) is taken to mean while the vessel is underway. The U.S. Coast Guard has informed ICCL that it agrees with this meaning of *"en route."*

In accordance with MARPOL (73/78) Regulation 20, ICCL member lines have agreed that every ship of 400 gross tons and above shall be provided with an oil record book which shall be completed on each occasion whenever any of numerous specified operations take place in the ship and that operations include:

a. Ballasting or cleaning of fuel oil tanks,
b. Discharge of dirty ballast or cleaning water from the fuel oil tanks above,
c. Disposal of oily residues,
d. And discharge of bilge water that accumulated in machinery spaces.

Requirements regarding the keeping of an Oil Record Book as well as the form of the Oil Record Book are also found in MARPOL and in U.S. Coast Guard regulations (33CFR151).

Handling Method Employed by Member Lines:

Bilge and oily water residue are processed prior to discharge to remove oil residues, such that oil content of the effluent is less than 15 ppm as specified by MARPOL Annex 1.

I. **Glass, Cardboard, Aluminum and Steel Cans**: *ICCL member lines have agreed to eliminate, to the maximum extent possible, the disposal of MARPOL Annex V wastes into the marine environment through improved reuse and recycling opportunities. They have further agreed that no waste will be discharged into the marine environment unless it has been properly processed and can be discharged in accordance with MARPOL and other prevailing requirements.*

Management of shipboard generated waste is a challenging issue for all ships at sea. This is true for cruise vessels, other commercial vessels, military ships, fishing vessels and recreational boats. Waste products in earlier days were made from natural materials and were mostly biodegradable. Today's packaging of food and other products presents new challenges for waste management. A large cruise ship today can carry over three thousand passengers and crew. Each day, an average cruise passenger will generate two pounds of dry trash and dispose of two bottles and two cans.

A strategy of source reduction, waste minimization and recycling has allowed the cruise industry to significantly reduce shipboard generated waste. To attain this, ICCL member lines have agreed to adopt a multifaceted strategy that begins with waste minimization to decrease waste from provisions brought onboard. This means purchasing in bulk, encouraging suppliers to utilize more efficient packaging, reusable packaging, and packaging materials that are more environmentally friendly—those that can be more easily disposed of or recycled. In fact, through this comprehensive strategy of source reduction, total waste on passenger vessels has been reduced by nearly half over the past ten years.

Another important component of the industry's waste reduction strategy is product or packaging recycling. Glass, aluminum, other metals, paper, wood and cardboard are, in most cases, recycled.

Handling Method Employed by Member Lines:

MARPOL Annex V ship waste is minimized through purchasing practices, reuse and recycling programs, landing ashore and onboard incineration in approved shipboard incinerators. Any Annex V waste that is discharged at sea will be done in strict accordance with MARPOL and any other prevailing requirements.

J. **Incinerator Ash**: *ICCL member lines have agreed to reduce the production of incinerator ash by minimizing the generation of waste and maximizing recycling opportunities, and that the discharge of incinerator ash containing hazardous components will be prevented through a program of waste segregation and periodic ash testing.*

Incinerator ash is not normally a hazardous waste. Through relatively straightforward waste management strategies, items that would cause the ash to be hazardous are separated from the waste stream and handled according to accepted hazardous waste protocols. In general, source segregation for waste streams is foundational for onboard waste management and is incorporated into the waste management manual required by MARPOL. Waste management for onboard waste streams include the following: source reduction, minimization, recycling,

collection, processing and discharge ashore. This allows the incinerator to be used primarily for food waste, contaminated cardboard, some plastics, trash and wood.

Member lines have agreed that incinerator ash will be tested at least once quarterly for the first year of operation to establish a baseline and that testing may then be conducted once a year. The member lines have further agreed that a recognized test procedure will be used to demonstrate that ash is not a hazardous waste. A recognized test procedure includes the following metals as indicators for toxicity - arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Special attention is placed on the removal of batteries from the incinerator waste stream. The use of incinerators saves landfill space and prevents the build up of material onboard that could become the breeding ground for insects, rodents and other vermin.

Handling Method Employed by Member Lines:

Proper hazardous waste management procedures are to be instituted onboard each ship to assure that waste products, which will result in a hazardous ash, are not introduced into the incinerator. Non-hazardous incinerator ash may be disposed of at sea in accordance with MARPOL Annex V. Ash identified as being hazardous is disposed of ashore in accordance with RCRA.

K. Wastewater reclamation

Because of the amounts of fresh water involved, and its restricted availability onboard ship (all fresh water must be either purchased or generated onboard), fresh water is a valuable commodity. Therefore, water management is extremely important and takes the form of both minimizing water usage and the potential reclamation and reuse of water for non-potable purposes. Many ICCL companies are researching new technology and piloting graywater treatment systems onboard their vessels. ICCL member operators also take numerous steps in onboard water management. Water management techniques include:

a. Use of technical water (for example: air conditioning condensate) where possible.
b. Use of water recovery systems (for example: filtering and reuse of laundry water – last rinse use for first wash).
c. Reclamation and reuse as technical water (flushing toilets, laundry, open deck washing) of properly treated and filtered wastewaters.
d. Active water conservation (for example: use of reduced flow showerheads, vacuum systems for toilets, vacuum food waste transportation and laundry equipment that utilizes less water).

L. **Graywater**: *ICCL member lines have agreed to discharge graywater only while the ship is underway and proceeding at a speed of not less than 6 knots; that graywater will not be discharged in port and will not be discharged within 4 nautical miles from shore or such other distance as agreed to with authorities having jurisdiction or provided for by local law except in an emergency, or where geographically limited. The member lines have further agreed that the discharge of graywater will comply with all applicable laws and regulations.*

The term graywater is used on ships to refer to wastewater that is generally incidental to the operation of the ship. The International Maritime Organization (IMO) defines graywater as including drainage from dishwasher, shower, laundry, bath and washbasin drains. The US Clean Water Act (formally know as the Federal Water Pollution Control Act) includes galley, bath and shower water in its definition of graywater. The US regulations implementing this act do not

include a further definition of gray water. However, the regulations do include a provision that exempts all of the wastewater included in the IMO definition and other discharges incidental to the operation of a ship from the Clean Water Act's permitting program (formally known as the National Pollution Discharge Elimination System (NPDES) program). Finally, the US Coast Guard regulations include provisions that essentially combine the two definitions from the IMO and the Clean Water Act. None of the definitions of graywater include blackwater (discussed below) or bilgewater from the machinery spaces. Recent U.S. Legislation places limits on the discharge of graywater in the Alaska Alexander Archipelago.

Handling Method Employed by Member Lines:

Graywater is discharged only while ships are underway and proceeding at a speed of not less than 6 knots, in recognition that dispersal of these discharges is desirable and that mixing of these waters, which are discharged approximately 10-14 feet below the surface, by the action of the propellers and the movement of the ship, provides the best dispersal available.

M. **Blackwater**: *ICCL member lines have agreed to discharge* blackwater *only while the ship is underway traveling at a speed of not less than 6 knots and in accordance with applicable regulation, and that blackwater will not be discharged in port and will not be discharged within 4 nautical miles from shore or such other distance as agreed to with authorities having jurisdiction or provided for by local law, except in an emergency, or where geographically limited. The member lines have further agreed that the discharge of blackwater will comply with all applicable laws and regulations.*

Waste from toilets, urinals, medical sinks and other similar facilities is called "blackwater." Most cruise ships separate blackwater from other wastewaters before processing and/or discharge.

Treated blackwater is processed using an approved "Marine Sanitation Device" (MSD) that is intended to prevent the discharge of untreated or inadequately treated blackwater. Marine Sanitation Devices use physical, chemical and/or biological processes to allow effluent from the process to be discharged with characteristics that are similar to effluents from conventional, shoreside wastewater treatment plants.

All MSDs are certified and approved by the US Coast Guard. The US Coast Guard consults with the Environmental Protection Agency in evaluating processes used to certify MSDs.

The US Coast Guard regularly inspects MSDs while onboard ships for proper operation during their Control Verification Examinations. If the Coast Guard has reason to believe that an MSD is not properly operating, it can require the vessel owner to have the effluent sampled and analyzed by a qualified wastewater laboratory, with the results reported to the Coast Guard.

Handling Method 1 Employed by Member Lines:

Blackwater is treated by a properly working, approved Marine Sanitation Device prior to discharge. As agreed with and required by the U.S. Coast Guard, MSDs are tested periodically to ensure continued operation in accordance with certification standards.

Handling Method 2 Employed by Member Lines:

Untreated blackwater is discharged into the ocean at a distance greater than 12 nautical miles from any land, coral reef or designated sensitive area in accordance with MARPOL or such other distance as agreed to with authorities having jurisdiction

N. Advanced Wastewater Treatment Systems:

To improve environmental performance, cruise lines are testing and installing wastewater treatment systems that utilize advanced technologies. These onboard wastewater treatment systems are designed to result in effluent discharges that are of a high quality and purity; for example, meeting or surpassing standards for secondary and tertiary effluents and reclaimed water. Effluents meeting these high standards would not be subjected to the strict discharge limitations previously discussed.

O. Training and Educational Materials

Training is an important and ongoing part of every position and tasking onboard cruise ships. Not only is training necessary for the safe and economical operation of a ship, it is required by numerous international conventions and flag state regulations. The International Convention on Standards of Training Certification and Watchkeeping (STCW) for example, sets forth requirements for knowledge, experience and demonstrated competency for licensed officers of the deck and engineering departments and for ratings forming part of a navigation or engineering watch. These detailed requirements address not only the navigation of the ship but also the proper operation of the shipboard machinery and knowledge of and ability to assure compliance with the environmental protection requirements of MARPOL and the safety regulations of The International Convention on Safety of Life at Sea (SOLAS). SOLAS also requires that the ship's training manual (which contents are prescribed by regulation) be placed in the crew messes and recreation rooms or in individual crew cabins.

ICCL member lines have developed programs that raise the level of environmental awareness on the part of both the passengers and the crew. Each ship's crew receives training regarding shipboard safety and environmental procedures. Advanced training in shipboard safety and environmental management procedures is provided for those directly involved in these areas. Those directly responsible for processing wastes are given specific instruction in their duties and responsibilities and in the operation of the various equipment and waste management systems. Specific actions that our member lines have taken to train employees and increase passenger awareness include:

a. Announcements over the public address system and notices in ship newsletters that caution against throwing any trash overboard,
b. Signage and colorful posters placed in crew and passenger areas encouraging environmental awareness and protection,
c. Safety and environmental information booklets in crew cabins and crew lounges,
d. Regular meetings of ship safety and environmental committees consisting of officers and crew from all departments to review methods of improving performance, including better and more effective environmental practices.

STCW, SOLAS and the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code) require that training be fully documented. Individual training is documented in each crewmember's file. Ship training exercises, such as fire drills and emergency response exercises, are documented in the appropriate ship's logs. All of these

training documents are required to be available for oversight examination by both the ship's flag state inspectors and by port state authorities such as the United States Coast Guard.

Placards warning of the prohibition of the discharge of oil are posted on all ships operating in the navigable waters of the United States as required by U.S. Coast Guard regulations (33CFR155.450). Additionally, as part of required shipboard waste management plans, both Coast Guard regulations (33CFR151.59) and MARPOL (Annex V Regulation 9) require the posting of placards that notify the passengers and the crew of the disposal requirements for garbage. These placards are to be written in the official language of the State whose flag the ship is entitled to fly and also in English or French if neither of these is the official language. Once again, oversight of compliance with these requirements is conducted by ISM audits and frequent inspections by flag states and the United States Coast Guard.

The Safety of Life at Sea Convention mandates compliance with the ISM Code. This comprehensive Code requires that each vessel operating company and each vessel participate in a very strictly defined management program, under both internal and external audit and regulatory oversight, that sets forth detailed procedures for assuring compliance with safety, environmental protection, emergency response and training mandates.

Equivalent equipment, practices and procedures

ICCL member lines have agreed that the use of equivalent or other acceptable practices and procedures shall be communicated to ICCL. As appropriate, such practices and procedures shall be included as a revision to this document. As an example, when improved systems for treating blackwater and graywater are perfected, shown to meet the requirements for MSDs and accepted by appropriate authorities for the treatment of graywater, the new systems and associated technology will be included together with their impact on the current standard of discharging graywater only while underway.